Course Web Site

http://redwood.berkeley.edu/wiki/VS298:_Unsolved_Problems_in_Vision

The Neural Binding Problem(s)

*The **binding problem** is one of a number of terms at the interface between neuroscience and philosophy which suffer from being used in several different ways, often in a context that does not explicitly indicate which way the term is being used.*
Wikipedia, June 2012 < Replaced in 2014 by a totally inadequate article. >

Four Distinct Variants, at least

1. General Temporal Coordination **(Kelso, Singer)**

BBS- Binding by Synchrony

General temporal dependence - everywhere

Phase coherence

Violin, Guitar playing

2. Visual Feature-Binding **(Treisman, Prinzmetal)**

Pop-out, illusions

Attention, Short term memory

Many interesting experiments

3. Variable Binding **(Malsburg, L. Shastri, Hummel, Feldman)**

Variables in language and thought; unification

Solvable, but completely unsolved

Fixed networks: Cross-bars, etc.

Temporal Phase binding, Episodic memory

4. Subjective Unity of Perception **(Chalmers, Dennet, Searle)**

Subcase of the mind-brain problem – intractable

Illusion of a detailed stable visual world, change-blindness, etc.

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